

Collaborative editing in a MediaWiki environment



Agenda

1. What is Wikimedia / MediaWiki VisualEditor?
2. A very brief history of simultaneous editing in MediaWiki
3. Technical base
4. DEMO
5. Where to get and how to run it?
6. Future plans
7. Questions

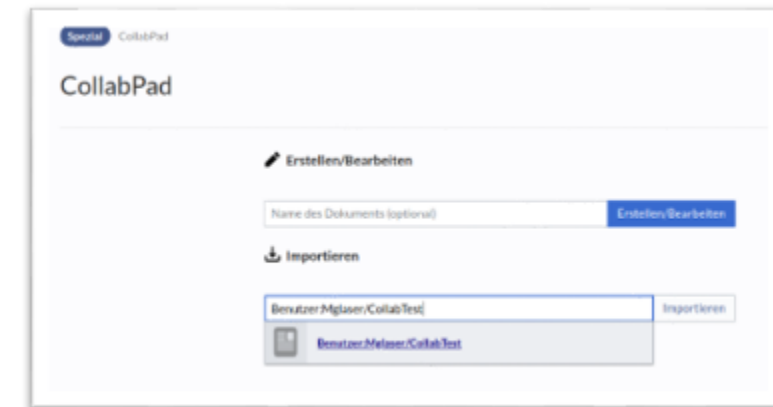
What is Wikimedia / MediaWiki VisualEditor?

- Wikimedia VisualEditor = "Standalone HTML5 WYSIWYG editor, written in JavaScript"
- MediaWiki VisualEditor = "(Core-)Extension of MediaWiki, that allows WYSIWIG editing of Wikitext based content"
 - VisualEditor only understands HTML, not WikiText
 - "Parsoid" service for bi-directional conversion WikiText<->HTML

A very brief history of simultaneous editing in MediaWiki



- First ideas in the Wikimedia Foundation around 2011
 - Due to use of Etherpad / Google Docs within the Foundation
- New VisualEditor project as a chance
- Conceptual issues (e.g. contributor attribution)
- Last changes around 2020
- Since then only "maintenance changes"
- 2023/2024 Extension:CollabPads



Technical base



- "Rebaser"
 - Client: build into VisualEditor (Standalone Editor)
 - Server: NodeJS app (originally)
- Linear (Data) Model + Transactions



Technical base – Linear Model

```
<span style="color:red">' 'Hallo' ' ' 'Welt' ' ' </span>!
```



Technical base – Linear Model

```
[
  { "type": "/paragraph" ... },
  [ "H", [ "...6a", "...a2" ] ],
  [ "a", [ "...6a", "...a2" ] ],
  [ "l", [ "...6a", "...a2" ] ],
  [ "l", [ "...6a", "...a2" ] ],
  [ "o", [ "...6a", "...a2" ] ],
  [ " ", [ "...6a" ] ],
  [ "W", [ "...6a", "...86" ] ],
  [ "e", [ "...6a", "...86" ] ],
  [ "l", [ "...6a", "...86" ] ],
  [ "t", [ "...6a", "...86" ] ],
  "!",
  { "type": "/paragraph" },
]

ve.init.target.surface.model.documentModel.store.hashStore =
...
...86: VeDmBoldAnnotation {
  ... VeDmHashValueStore, name: 'textStyle/bold'}
...6a: VeDmSpanAnnotation {
  ... VeDmHashValueStore, name: 'textStyle/span'}
...a2: VeDmItalicAnnotation {
  ... VeDmHashValueStore, name: 'textStyle/italic'}
```



Technical base - Transactions

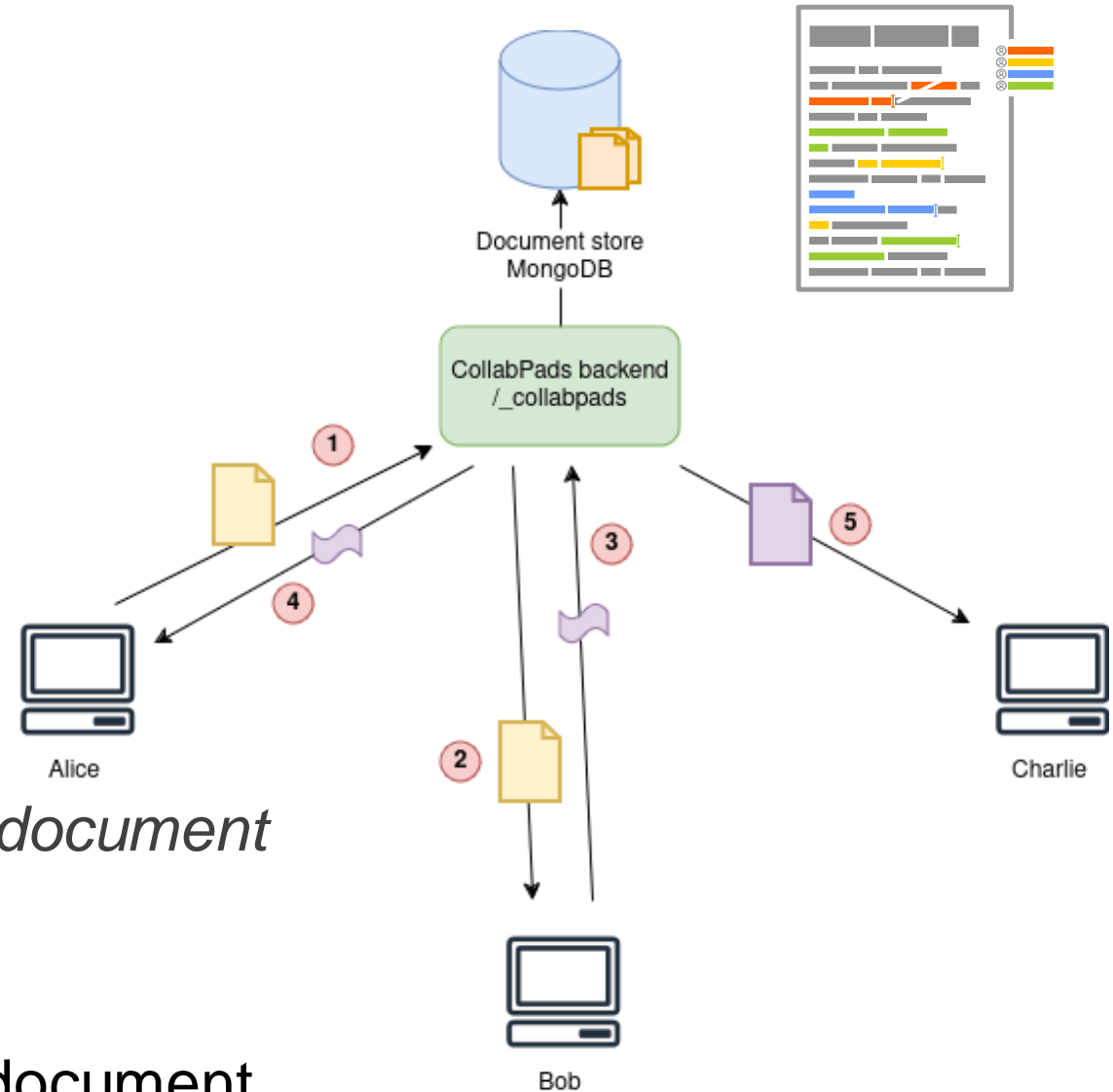
```
{
  "start": <int>, // Length of the history stack at change start
  "transactions": [{
    "o": [{ // operations
      "o_value": [
        { "type": "retain", "length": 1 },
        { "type": "replace", "remove": [], "insert": [ "H" ] },
        { "type": "retain", "length": 3 },
        { "type": "attribute", "key": "level", "from": 6, "to": 3 },
        { "type": "retain", "length": 3 } ]
      }],
    "a": <int> //author
  }],
  "stores": <array(objectHashValueStore)>, // For each transaction, a collection of new items
  "selections": <objectSelection> //For each author ID (key), latest ve.dm.Selection
}
```


Technical base

1. Creator of session sends document
2. Joining participant retrieves document
3. Participant sends change

Change gets "rebased" on serverside document

4. All participant receive rebased change
5. Newly joining participant receives full document



DEMO





Where to get and how to run it?

- Codebase of extension and backend recently published on mw.org
 - <https://www.mediawiki.org/wiki/Extension:CollabPads>
- Can be installed like a regular extension
 - Requires Extension:VisualEditor and Extension:OOJSPlus
- LTS-bound release strategy
- Dockerfile for custom Docker container images available
- Consider using a proxy to mask the non-standard port of the backend
- Make sure the backend can connect to the wiki using HTTP

Future plans

- Improve backend maintenance tools (backup & restore)
- Add management functionality
- Add configuration to make "edit together" the default edit mode

Thank you!

Questions?



Ressources

- VisualEditor:
https://www.mediawiki.org/wiki/VisualEditor/Setup#Stand_alone
- Linear model:
https://www.mediawiki.org/wiki/VisualEditor/API/Data_Model/Surface
- Extension:CollabPads
 - <https://www.mediawiki.org/wiki/Extension:CollabPads>
 - <https://github.com/wikimedia/mediawiki-extensions-CollabPads/tree/master/backend>